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MECHANICAL PULPING: Review of recent developments in North America **142**

Volume 61
Number 13

DECEMBER

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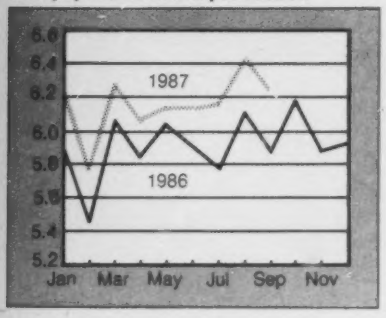
U.S. paper and board production



U.S. production of paper and paperboard totaled 6.2 million tons in September, up 6.2% from the same month in 1986, according to American Paper Institute data. Production continued along the rising trend line it has followed all year, as new records were set for both third-quarter and nine-month performance. On a seasonally adjusted basis, paper production was up 4.0% compared with 1986, to 36.5 million tpy, while paperboard climbed to 37.2 million tpy, up 6.1% from the previous year. Total paper and board were up 6.1% overall compared with 1986.

Among major grades, coated papers continued to lead the way, with production for the first nine months up 10.3% from 1986. Containerboard production for domestic use was up 7.7%, to 22.9 million tpy, while fiber box shipments set new records for the month and quarter. Exports of unbleached kraft linerboard were up 13.8% through August.

Canadian newsprint shipments totaled 785,000 metric tons in September, down 0.6% from the previous year. Woodpulp exports climbed 2.7% to 683,000 tons. Operating rates for both woodpulp and newsprint stood at 98% for the month, up from 93% in September 1986. ■

	Latest month (000 short tons)		% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	Sept.	494	6.9	5,803	3.2
Uncoated groundwood (s)	Sept.	126	-4.5	1,526	0.2
Coated paper (s)	Sept.	591	6.5	6,784	10.3
Uncoated free sheet (s)	Sept.	926	6.2	10,863	5.0
Other printing/writing	Sept.	117	2.6	1,376	0.1
Total packaging and other paper (s)	Sept.	413	-2.8	5,034	-1.6
Tissue	Sept.	436	5.1	5,253	3.8
Total paper	**Sept.**	**3,103**	**4.3**	**36,640**	**4.0**
Unbleached kraft paperboard	Sept.	1,613	12.2	18,871	7.3
Semichemical medium	Sept.	470	4.4	5,631	4.9
Bleached paperboard	Sept.	348	2.1	4,426	3.9
Recycled paperboard	Sept.	705	5.4	8,523	5.5
Total paperboard	**Sept.**	**3,135**	**8.2**	**37,452**	**6.1**
Total U.S. paper and paperboard output	**Sept.**	**6,238**	**6.2**	**74,091**	**5.1**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	August	5,083	3.7	59,438	4.6
Market pulp production	August	707	4.7	8,077	7.2
Wastepaper consumption at paper/board mills	August	1,539	10.7	17,549	5.5
Pulpwood consumption (cords)	August	7,729	1.9	93,815	2.8
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	Sept.	25.925	5.9	223.387[6]	4.8
Containerboard inventories at U.S. box plants and mills	Sept. 1	2,433	3.8		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	August	1,003	0.2	12,322	6.7
Imports of Canadian newsprint	August	676	-5.3	8,612[6]	2.9
U.S. paper exports (including products)	August	486	23.4	5,233	15.6
Exports of unbleached kraft linerboard	August	219	28.8	2,297	13.8
Exports of woodpulp	August	390	-6.7	4,835	9.8
Norscan pulp inventories[4]	Sept. 30	856	-7.0		
Norscan pulp operating rates[4]	Sept.	94%	100%	105%	98%
CANADIAN STATISTICS[5] *(reported in metric tons)*					
Total newsprint shipments	Sept.	785	-0.6	6,405[6]	5.2
Operating rates	Sept.	98%	93%	97%	93%
Inventories held by U.S. consumers	Sept. 30	1,475	2.6		
Other paper/board shipments	Sept.	539	5.7	4,221	6.2
Woodpulp shipments (export only)	Sept.	683	2.7	5,313	2.3
Operating rates	Sept.	98%	93%	97%	92%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

Newsprint: Sellers' market through 1989, as capacity catches up with consumption

Grade structure: Newsprint is commonly sold in the U.S. in 28 lb to 32 lb, although there has been some shift to the lighter basis weights. Standard newsprint, though, is considered to be 30 lb. Typically, brightness is in the 55 to 61 range. Of total newsprint consumed in the U.S., 62.2% was used by daily newspapers in 1986. The remainder was sold to customers that included weeklies, commercial printers, shopping news, comic magazines, and government publications, according to the American Newspaper Publishers Assn.

Production/capacity: Newsprint output was again breaking records in 1987, after a record year in 1986. U.S. mill shipments through the first ten months of 1987 were up 3.2% from the previous year, according to the American Paper Institute. Canadian production through the first three quarters was up almost 5%. At the same time, U.S. consumption rose 2.8% compared with the same three quarters in 1986.

Canadian mills supplied 57.1% of U.S. newsprint requirements in the first nine months of 1987, up slightly from 56.5% a year earlier, according to the Canadian Pulp & Paper Assn. This was surprising considering mill downtime due to strikes or lockouts in Canada was nearly 60,000 tons higher in the first eight months of 1987 than during the same period a year earlier, industry reports indicated.

U.S. imports from areas other than Canada, however, remained stable in 1987 from the prior year, representing about 2.5% of total imports through the first three quarters. At the same time, U.S. domestic sources of supply also remained flat at about 40%.

Outlook: Industry forecasts indicated newsprint consumption should be up at least 2.3%, but probably closer to 3%, in 1987. In 1988, such factors as the U.S. presidential election and the Olympics in Calgary, Alta., should boost newsprint sales higher than normal. Some estimates are even higher, but a possible recession in 1988 following last October's stock market decline is adding some caution. Usage may also be limited by supplies, and rising prices could cause publishers to conserve their newsprint supplies.

Newsprint capacity in Canada is expected to rise by an annual rate of less than 1% between 1986 and 1989, according to CPPA. In the U.S., expansions will be somewhat greater during this time. According to figures from API, capacity will rise by 1.7% a year between 1986 and 1989, but jump by 8.8% between 1989 and 1990 when capacity will reach an estimated 6.64 million tons.

Declining inventory levels and minimum capacity additions indicate a strong supply/demand pattern well into 1988, unless a poor economy depresses newsprint demand in the U.S. While newsprint demand should rebound in the early 1990s, new supply remains a concern—with more than 1 million tons of new capacity expected to start up in North America by 1991.

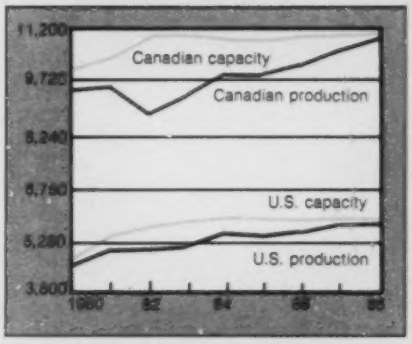
Pricing: After raising prices twice over the prior 12 months, most producers in the fourth quarter of 1987 were gearing up for a Jan. 1, 1988 price hike. Champion International Corp. and Kimberly-Clark Corp., however, were not expected to raise prices until February or March. After two years of declining transaction levels, prices started to rise on Oct. 1, 1987 but the announced price hike to $570/metric ton (in the East) was not fully implemented until Jan. 1, 1987. On July 1, 1987, prices rose to $610 and were slated to go up to $650 on Jan. 1, 1988.

Industry analysts expected the price of newsprint to climb as high as $700 in 1988. Brian Topp of Capital Group Securities Ltd. projected a price hike to $650 at the beginning of 1988, followed by a further increase to $700 in the second half of 1988, and a third boost to $750 by the first half of 1989, barring a recession.

List price history is as follows (U.S. East, contract, year-end, per metric ton): 1974, $259; 1975, $284; 1976, $314; 1977, $331; 1978, $353; 1979, $413; 1980, $441/$470; 1981, $500; 1982, $468; 1983, $500; 1984, $535; 1985, $535; 1986, $500/$535; 1987, $500/$570.

Markets: Canada's market share in the U.S. was 57.0% in 1986 compared with 57.3% for 1985 and 56.9% for 1984. Canada has supplied about 57% of U.S. demand for several years. ■

SUPPLY/DEMAND (000 tons)



FORECAST (000 tons)

	1986	1987e	1988e
U.S.			
Production[1]	5,630	5,800	5,945
Capacity[1]	5,804	5,941	6,013
Utilization rate	97.0	97.6	98.9
Apparent U.S. consumption	13,826	14,400	14,764
lb/capita	115.1	118.2	120.0
GNP ratio	3.71	3.74	3.73
Canada			
Production[2]	10,238	10,657	10,923
Capacity[2]	10,896	11,051	11,199
Utilization rate	94.0	96.4	97.5

e = *Pulp & Paper* estimate.
1. American Paper Institute
2. Canadian Pulp & Paper Assn.

TOP U.S. PRODUCERS (000 tpy)

Company	Annual capacity U.S.	Canada	Total	Market share (%)
1. Abitibi-Price	385	1,909	2,294	13.5
2. CIP	—	1,207	1,207	7.1
3. Bowater	942	234	1,176	6.9
4. ConBath	—	1,022	1,022	6.0
5. Kruger	—	884	884	5.2
6. Champion[1]	831	—	831	4.9
7. K-C[2]	445	378	823	4.8
8. Boise[3]	534	271	805	4.7
9. Ontario	—	787	787	4.6
10. MacBlo	—	779	779	4.6

Market share of top five companies:
38.7%

Market share of top ten companies:
52.4%

Total North American capacity (1987):
16.992 million tons

1. Includes Catawba Newsprint Co. (51.0% owned), Calhoun, Tenn.; and Bowater Mersey Paper Co. Ltd. (51.0% owned).
2. Includes Spruce Falls Power & Paper Co. Ltd. (50.5% owned).
3. Includes Boise Southern Co., DeRidder, La.

SALES & EARNINGS

U.S. paper industry earnings increase 57.2%

The U.S. pulp and paper industry enjoyed earnings during the third quarter that were 57.2% above year-earlier levels on a 24.7% improvement in sales, a survey of 30 companies by *Pulp & Paper* revealed. This follows a 75% increase in profits during the second quarter. Most industry executives said they expected healthy earnings in the fourth quarter as well—if anyone on Wall Street was paying any attention.

It was hard for most paper companies to find anything to complain about in the third quarter. Producers of market pulp, linerboard, and newsprint continued to reap the benefits of strong demand and the weak dollar, and fine paper and tissue markets strengthened. Even some companies that are market pulp buyers managed to show earnings gains. The third quarter was noteworthy for the large number of price increases that were announced or implemented during the period.

Weyerhaeuser Co. enjoyed earnings more than two times larger than the year-earlier period, which was hurt by a strike. A company spokesman said that Weyco's pulp and paper mills were running flat-out and that strength in the export log market also aided earnings.

Champion International Corp. said that operating income from its paper segment was $137 million in the third quarter compared with $114 million a year earlier. The company attributed the earnings gains to a strong showing in all its business segments in addition to its continued cost cutting and improvements in productivity. The company also said that the profits from its packaging business increased substantially because of the continued improvements in price, volume, and productivity for linerboard and kraft paper.

Georgia-Pacific Corp. had the most sales of any company during the third quarter at $2.4 million. T. Marshall Hahn, chairman and CEO, commented, "Our pulp and paper segment reported operating profits of $92 million, up 80% from the 1986 period and an all-time high for the third consecutive quarter. Our timely mill improvements and upgrades have enabled us to take advantage of stronger export and domestic markets, which have had a significant impact on our recent performance."

International Paper Co.'s earnings improved 12.1%, while sales were up 66% to $2 billion. The results include those of Hammermill Paper Co. John A. Georges, chairman and CEO of IP, said that higher volume and a more favorable pricing structure for most of IP's products were the main reasons for the good showing. He added that the outlook for the fourth quarter is favorable and "the impact of labor disputes at four of our facilities is diminishing. The market is good and we anticipate strong operating rates and pricing levels given a continuation of the economic trends now in place."

James River Corp. ended its first quarter on July 26, and earnings were down 9.6% from the year-earlier level. The company blamed the decline partly on a higher effective tax rate and on lower results in tissue and towel, communication paper, packaging products, and specialty paper. Especially hard hit by high pulp prices

TABLE 1: **U.S. paper industry results.**

	Third quarter ($000)			
Companies	Sales	Change 1987/86	Earnings[1]	Change 1987/86
Boise Cascade Corp.	$996,960	5.7%	$50,390	280.6%
Bowater Inc.	303,906	28.0	23,010	98.7
Champion International	1,198,987	7.9	88,694	38.9
Chesapeake Corp.	179,417	10.9	6,805[2]	9.9
Consolidated Paper Corp.	188,236	19.2	22,042	9.2
Federal Paper Board Co	237,674	7.1	21,124	112.9
Fort Howard Paper Co.	469,683	4.4	45,421	6.9
Georgia-Pacific Corp.	2,424,000	27.0	118,000	21.7
P.H. Glatfelter Co.	120,719	75.7	13,457	49.5
Great Northern Nekoosa Corp.	664,600	29.2	55,700	61.0
International Paper Co.	2,000,000	66.7	102,000	12.1
James River Corp. (7/26)	1,179,216	10.2	41,812[2]	−9.6
Jefferson Smurfit Corp.	282,701	17.8	26,057	234.8
Kimberly-Clark Corp.	1,223,200	14.9	84,100	33.5
Longview Fibre Co. (7/31)	144,448	11.6	16,938	76.1
Louisiana-Pacific Corp.	531,800	30.5	42,600	91.9
Mead Corp.	1,110,500	32.6	97,400[2]	n.m.
Mosinee Paper Corp.	55,658	11.7	2,088	101.9
Pentair Inc.	198,474	21.6	4,560	43.9
Pope & Talbot Inc.	113,528	45.5	7,077	65.4
Potlatch Corp.	246,807	−1.3	22,604	35.1
Scott Paper Co.	1,034,000	26.1	58,500	53.1
Sonoco Products Co.	344,435	43.2	15,674	20.1
Stone Container Corp.	907,000	64.9	44,500	270.8
Temple-Inland	419,100	25.6	38,200	90.0
Union Camp Corp.	583,263	13.1	56,537	55.2
Wausau Paper Mills Co. (5/31)	251,371	11.8	12,047	4.7
Westvaco Corp. (7/31)	481,517	4.0	43,162	66.4
Weyerhaeuser Co.	1,819,882	30.2	126,123	102.6
Willamette Industries Inc.	376,787	25.5	31,954	49.8
Total	**$20,287,989**	**24.7%**	**$1,318,576**	**57.2%**

n.m.—Not meaningful.

1. Income after taxes, from continuing operations, excluding most significant nonrecurring items in both years.

2. **Chesapeake:** Excludes a net charge of $3.2 million from sale of Plainwell. **James River Corp.:** 1987 quarter excludes a $5.5-million gain from insurance settlement involving equipment damaged by boiler explosion at Old Town, Maine, mill. **Mead Corp.:** 1987 quarter includes pretax gain of $42.8 million from sale of six corrugated container plants and Mead's 50% interest in a linerboard mill.

were the nonintegrated tissue and specialty paper segments.

Containerboard demand soaring. Stone Container Corp.'s earnings for the first nine months were up an astronomical 864% over the year-earlier period. Net income for the third quarter alone exceeded the company's former record for annual net income. Roger W. Stone, chairman, president, and CEO, said, "Demand for our products continues to be exceptionally strong. Industry shipments of corrugated containers were up 5.6% in the quarter and 4.8% for the nine months, both of which are records. We expect this level of demand to continue and to push the limits of industry capacity. Given this scenario, we anticipate that our company will continue to set new records for sales and earnings."

Boise Cascade Corp. had the most improved results of the companies surveyed with earnings rising 280% over year-earlier levels. While this was partially due to a strike endured by Boise's Rumford, Maine, mill during third-quarter 1986, this year's results are also due to "improved efficiency, better markets for virtually all of its paper products, and continued strong markets for its building products," John Fery, chairman and CEO said. He also noted that corrugated container prices improved and volume was strong, but profit margins continued to be squeezed as box price increases lagged price increases for linerboard.

Union Camp Corp.'s earnings were about 55% ahead of last year. Gene Cartledge, chairman and CEO, attributed the gain to "strong demand for paper and packaging, high operating rates in paper and board mills, and improving prices for many products." Cartledge predicted that results for the fourth quarter and the year will be excellent since white paper prices are expected to improve and the full impact of the announced container price increases will be felt.

Sonoco Products Co. enjoyed an earnings increase of 20% on a 43% improvement in sales. The results include the April acquisition of the consumer packaging division of Boise Cascade Corp. "We anticipate significant savings by combining several of the Sonoco and former Boise operations, and that process is under way," president C.W. Coker reported.

John R. Kennedy, president of Federal Paper Board Co. Inc., said, "Improved market pulp earnings were the major contributor to the record earnings in the third quarter, with wood products contributing significantly better results." He noted that bleached board and packaging markets were moderately better, while recycled paperboard and printing papers had lower earnings. Further improvements are expected in bleached board because of the announced price hike and the startup of capital projects at Federal's Augusta, Ga., mill slated for late this year and early next year. Recycled board is still struggling with high wastepaper prices.

Publication paper demand strong. Mead Corp. announced that before nonrecurring gains, its third-quarter earnings from continuing operations of $54 million set a record for the quarter and were 33% higher than the year-earlier period. Mead said that demand for coated papers continued to increase during the third quarter and most of its product lines remain on allocation, including the new Signature line that it introduced in September. Orders for Mead's uncoated and carbonless papers were also very strong during the third quarter. Coated board sales were approximately 9% ahead of last year's figures, and the product continues to remain on allocation. Corrugating medium for shipping containers remains sold out, and prices increased during the third quarter, the company reported.

Bowater Inc. enjoyed a 98.7% earnings increase. Anthony P. Gammie, chairman and CEO, said, "Not only did the glut in lightweight coated paper that was anticipated by some not occur, but the upturn was actually quite sharp."

Tissue producers profit too. Scott Paper Co. had the most improved earnings in the tissue sector with a 53% gain over the year-earlier period. Philip E. Lippincott, Scott's chairman and CEO, stated, "The company's record sales and earnings reflect sharply higher sales volume and earnings for the S.D. Warren subsidiary and strong increases in unit sales for the Scott Worldwide personal-care business." He noted that U.S. tissue manufacturing operations have been disappointing so far this year in light of "very strong volume increases." In addition, he stated that consumer advertising and promotion expenses are also continuing at a "somewhat higher than planned level."

Kimberly-Clark Corp. had a 33.5% increase in earnings. CEO and chairman Darwin Smith noted that "increased sales volumes for most consumer products, including the higher selling prices for disposable diapers, aided K-C's performance in the third quarter."

Fort Howard Corp.'s earnings rose 7% for the period. Chairman and CEO Paul J. Schierl said that the company's tissue business continues to do well: "Operating margins in 1987 are ahead of last year's levels, and volume is at an all-time high." He said that construction of the second recycled tissue machine to be installed at the Savannah River mill in Georgia is on schedule, and the company expects to start up the unit during first-half 1988. Schierl said the Savannah project is running about $30 million under budget. ■

Canadian earnings aided by pulp and newsprint markets

Canada's paper and forest products industry enjoyed a 95.2% increase in earnings for the third quarter on a 16.5% improvement in sales compared with the year-earlier period. Results continued to benefit from strong demand and rising prices for market pulp and newsprint. However, the weak U.S. dollar, some softness in fine paper and lumber prices, and the 15% export tax levied on softwood lumber shipments to the U.S. were negative factors cited by some companies.

Noranda Forest Inc.'s profits during the quarter jumped 160% compared with the strike-impaired 1986 period. The company said market pulp and newsprint were particularly strong, while printing and writing paper experienced some weakness, especially in the free-sheet grades. The company also said that order backlogs and sales volumes improved over the last two months. Noranda also said that the cost of British Columbia's new stumpage charges could not yet be calculated but commented, "at first blush, the amount would appear to exceed C$20 million before taxes."

MacMillan Bloedel Ltd. enjoyed record sales and earnings in the quarter. "Even though the current stock market crisis appears to be signaling economic uncertainty, nearly every sector of our business was buoyant in

the quarter, and we are in an excellent position to take advantage of the opportunities that may appear in the coming months," said Ray Smith, president and CEO. He said MB's strategy of making incremental outlays to convert its facilities to higher-value products was working well. But he cautioned that the current economic climate will slow the pace of MB's decisions on capital projects. "Some of our plans might not be moving ahead as quickly as was earlier anticipated," he observed.

Abitibi-Price Inc. reported that its third-quarter earnings were up 14.6% on increased sales of 4.6%. Bernd K. Koken, chairman and CEO, said that while earnings benefited from stronger performances in newsprint, distribution, and building products operations, the lower value of the U.S. dollar, which fell from an average of C$1.3911 in 1986 to $1.3310 in 1987, had a "significant adverse effect." The Jonquiere, Que., mill also experienced some delays in making web-sized offset paper.

Domtar Inc.'s net earnings fell 7.9% to C$35 million. The company said the main factor influencing operating profit in the third quarter was the major maintenance shutdown at Lebel-sur-Quevillon, Que., pulp mill, which caused the earnings of the entire pulp division to decline. The company noted that profits from its fine paper operations declined because of higher pulp costs, but profits from newsprint and groundwood specialties improved because of strong demand.

Consolidated-Bathurst Ltd. reported third-quarter operating earnings of C$84 million, which it said is a 23% improvement over last year's third-quarter. The company said higher prices for newsprint, bleached kraft pulp, and containerboard were offset by a rise in the Canadian vs U.S. dollar and higher manufacturing costs due to increases in energy costs and a short strike at its three St. Maurice Valley mills.

British Columbia Forest Products Ltd. enjoyed record earnings during the first nine months of C$99.5 million—a 190% increase over the 1986 period. The company described pulp and newsprint markets as "extremely robust" and has committed to spending C$32 million to increase newsprint capacity at its Crofton, B.C., facility. Sales of lightweight coated paper from BCFP's Blandin Paper Co. subsidiary were "excellent and the remaining production is sold out for the rest of 1987," the company said. BCFP warned, however, that the strengthening Canadian dollar, falling housing starts, and the introduction of the new stumpage appraisal system will adversely affect the company's earnings.

Canfor reported that the C$78.4 million it earned in the first nine months were 202% higher than the year-earlier level. The company said it used the extra cash to reduce its debt and plans to increase capital spending to improve product quality and output. Although U.S. lumber markets softened in the quarter, this was offset by healthy markets for sack kraft paper and pulp.

Rolland Inc. suffered a 90% decline in third-quarter earnings from its nonintegrated operations, reflecting some softness in fine paper prices and the sharp increase in purchased pulp costs.

Paperboard Industries Corp.'s sales improved astronomically, although its earnings were down about 87% in the quarter. It's energies were focused on acquiring and integrating Belkin Inc. It expects to reap the benefits from this in coming quarters as mill efficiency improves.

West Fraser Timber Ltd. reported a 36% increase in profits during the first nine months to $36 million. The company noted that strong worldwide demand for linerboard, along with limited capacity additions, "augurs well for price improvement." However, price increases on CTMP could possibly be stalled by new capacity entering the market, the company said.

• **Jefferson Smurfit Corp.**'s third-quarter record earnings amounted to US$26 million, which represents a 234.8% increase over the year-earlier period. Sales of $282 million were up 17.8%. The company attributed the good showing to successful price hikes that were put into effect on containerboard, boxboard, solid bleached board, and newsprint.

• **Chesapeake Corp.**'s third-quarter earnings of $6.8 million were 9.9% above the year-earlier period. (This excludes an after-tax charge of $3.2 million from the sale of Plainwell Paper Co.) Sales were up 10.9% to $179 million. ■

TABLE 2: **Canadian paper industry results**

	Third quarter 1987 (C$000)			
Companies	**Sales**	**Change 1987/86**	**Earnings[1]**	**Change 1987/86**
Abitibi-Price Corp.	C$749,800	4.6%	C$33,000[2]	14.6%
B.C. Forest	356,000	37.8	34,400	262.1
Canfor Corp.	318,800	12.1	31,100	148.8
Cascades Inc.	128,096	18.5	5,705	27.2
Consolidated Bathurst	557,517	6.6	74,441[3]	n.m.
Crestbrook Forest Industries	57,959	41.3	6,198	255.6
Crown Forest	272,200	23.0	27,100[4]	105.3
Domtar Inc.	651,000	11.3	35,000[5]	−7.9
Donohue Inc.	116,200	−6.4	8,900	7.2
Great Lakes Forest Products	192,200	20.6	26,200	197.7
MacMillan Bloedel	817,100	24.3	82,700	160.9
Noranda Paperboard Industries (8/31)	1,090,000 120,100	17.4 488.7	57,700 155	151.9 −86.9
Repap Enterprises Inc.	221,000	16.9	17,100	144.3
Rolland Inc.	94,792	7.6	129	−90.0
Scott Paper Ltd.	74,000	8.0	4,100	15.2
West Fraser Timber	105,400	−4.5	12,300	−12.8
Total	**C$6,922,184**	**18.5%**	**C$436,225**	**96.2%**

n.m.—Not meaningful.
1. Income after taxes, from continuing operations, excluding the most significant nonrecurring items in both years.
2. **Abitibi-Price:** 1986 earnings include C$2.3-million charge for writedown of certain items.
3. **Consolidated-Bathurst:** 1987 quarter includes the C$28.3-million pretax gain from sales of Diamond Bathurst Inc., sale of a plant in Fed. Rep. Germany, and writedown of stake in Sulbath Explorations. 1986 quarter includes C$3.03-million charge from shutdown of a plant.
4. **Crown Forest:** 1986 quarter excludes extraordinary charge of C$10.3 million for restructuring of Crown Stores subsidiary.
5. **Domtar:** the 1986 quarter includes C$4-million gain from tax-loss carry-forward.

FINANCE

Paper stocks battered in Wall Street panic

Worldwide stock markets collapsed in late October amid panic-driven trading on the New York Stock Exchange. The Dow Jones industrial average plummeted a record 508 points on Oct. 19.

Paper stocks were not spared from frenzied trading activity. Most shares lost 20% to 30% of their value and closed near their 52-week low. Major industry losers at the time of the crash included Scott Paper Co., down $15.75; Union Camp Corp., down $13.63; Boise Cascade Corp., down $13.00; and International Paper Co., down $12.50.

In Canada, the Toronto Stock Exchange also dropped a record 407 points on Oct. 19 followed by a 214-point drop on Oct. 20. The Toronto Exchange's index of paper and forest products companies declined 20% during the two-day period. Domtar Inc. withdrew a public stock offering of 5 million shares originally priced at C$19.25/share. Domtar's stock closed at $15. And Noranda Forest Inc. decided against proceeding with an offering of adjustable-rate convertible subordinated debentures.

Stock buybacks announced. At the outset of the market's collapse, many companies announced plans to repurchase their own depressed shares in the open market. Most companies said they thought their shares were a good investment at current levels. Paper companies that announced major buybacks or speedups of existing stock repurchase programs included Union Camp Corp., Temple-Inland Inc., Scott Paper Co., International Paper Co., Kimberly-Clark Corp., James River Corp., and Abitibi-Price Inc. Packaging Corp. of America backed out of a deal to sell its remaining recycled boxboard mills to Republic Gypsum Corp.

The losses suffered by the paper stocks may not be fully recovered by the end of the year, or even during 1988. Even before the market's collapse, a consensus of Wall Street analysts predicted that paper industry earnings would most likely peak in 1988 as the nation's economy approached the later stages of a five-year recovery cycle.

After outperforming the market in the first quarter, paper stocks have recently been lagging the S&P 500. Prior to the collapse, paper stocks were selling at 11 or 12 times projected 1988 profit, while the S&P's P/E was 16. The current P/E ratios are about 9 for paper and 13 for the S&P.

The big Wall Street sell-off, however, could dampen both consumer and capital spending, causing the next recession, which many forecasters had been predicting for 1989, to move closer. ■

TABLE 3: **Paper company stock performances during October's stock market collapse.**

U.S. (US$)	52-Week High	52-Week Low	Oct. 15 Close	Oct. 18 Close	Oct. 22 Close
Champion International Corp.	$44⅝	$28	$39¼	$29½	$27¼
Georgia Pacific	53¾	35⅝	41	28½	31
Great Northern	50½	28⅛	54¼	40¾	34⅞
International Paper Co.	57¾	34¼	46⅜	33⅞	34¾
Jefferson Smurfit Corp.	78½	9⅞	67¾	54¼	46¾
Mead Corp.	48⅜	27	41½	29¼	28⅝
Scott Paper Co.	87	59	79⅜	61	60½
Stone Container Corp.	59⅜	25⅜	50½	35¾	29
Weyerhaeuser Co.	60	35⅝	49⅝	33⅞	36¾
DJIA	2,722.42	1,755.20	2,355.09	1,738.74	1,950.43
Canada (C$)					
Abitibi-Price Inc.	45	23¼	32⅞	29	26
Consolidated Bathurst	23½	12¼	20⅞	17¾	16¼
Domtar Inc.	25¾	14	18½	14½	15⅝
MacMillan Bloedel Ltd.	31⅜	12⅞	28⅝	22⅞	19⅝
TSE 300	4,118.94	3,058.70	3,674.85	3,191.38	3,107.55

Gaylord Container to proceed with public offering

Gaylord Container Corp. still plans to make an initial public offering of 4.75 million Class A common shares despite the stock market collapse, but the issuance will be "subject to market conditions," a spokesman for the company said. Prior to the stock market crash, Gaylord had announced it would put the shares on the market.

Some 2.9 million shares are being offered by the company, and the rest are being sold by certain shareholders. According to the filing, Gaylord will merge with Mid-America Packaging Inc., which is owned by the same investor group, when the offering is completed.

The stock issuance will not affect Gaylord's plans to install a 1,000-tpd linerboard machine at its Bogalusa, La., mill at a cost of about $100 million because the machine will be financed in another way, the spokesman said. So far, Gaylord has not chosen a supplier for the machine or broken ground at the mill site. The unit is still in the engineering stages, the spokesman said. He reiterated that the 1,000-tpd unit will be an incremental capacity increase and will not replace older units.

Gaylord Container was previously part of the containerboard division of Crown Zellerbach Corp. Besides the Bogalusa facility, the company has a mill in Antioch, Calif. (200,000 tpy recycled containerboard), and another one in Baltimore, Ohio (56,000 tpy recycled containerboard). In addition, Gaylord also owns 18 corrugated box plants that are located in 12 states with an annual capacity of more than 8 billion ft^2.

Gaylord was acquired from Sir James Goldsmith in November 1986 for $260 million by an investor group headed by president and chief operating officer Warren J. Hayford and chairman and CEO Marvin A. Pomerantz. These two are also officers and major shareholders in Mid-America Packaging.

Mid-America Packaging came into being when Hayford and Pomerantz bought from Weyerhaeuser Co. an unbleached kraft paper mill and related multiwall bag plant assets in Pine Bluff, Ark., early last year. That 29-year-old mill has capacity for about 315 tpd of unbleached kraft paper used in paper bags and corrugated boxes. ■

NORTH AMERICAN MECHANICAL PULPING CAPACITY CLIMBS AS DEMAND EXPLODES

New newsprint machines, increased use in other paper grades, and rapid expansion of Canadian market CTMP mills lead the way

By JOHN C.W. EVANS, Senior Editor

Total North American capacity to produce mechanical pulp is currently close to 18.5 million short tpy, of which Canada is reponsible for two thirds and the U.S. for one third. Some 17.7 million tons of this is targeted for paper and paperboard. Capacity for TMP (including CTMP) has been gradually gaining on groundwood. Present indications are that U.S. TMP capacity may for the first time exceed that of groundwood in 1988, and that this will happen in Canada no later than the following year.

No immediate change is anticipated in Canadian RMP capacity, but the long-term trend has been to convert RMP capacity to TMP. It is unusual to see an upward change in RMP capacity anywhere, and it is very surprising to see an increase of more than 100,000 tons scheduled for the U.S. in 1988.

No separate capacity data on TMP and CTMP are available for either the U.S. or Canada, and there is no indication where capacity for chemirefiner-mechanical pulp (CRMP) is "buried."

Traditionally, mechanical pulp use in North America has been mainly for newsprint. However, the explosion in U.S. demand for other "groundwood" printing grades during the past decade has resulted in substantial increases in the use of mechanical pulps for these grades in both Canada and the U.S. Another significant area of growth has been in the use of coated publication grades, particularly in the U.S.

At least five newsprint mills in North America now regularly operate without any chemical pulp in the furnish. Four of the mills are located in Canada and one is in Virginia. Four use TMP only, while the oldest mill uses a mixture of TMP and groundwood. The U.S. mill is affiliated with the Canadian mill, which was the first anywhere to run regularly on 100% mechanical pulp.

U.S. capacity for TMP (including CTMP) has been gradually gaining on groundwood and may for the first time exceed that of groundwood in 1988.

GROUNDWOOD SLOWS AS TMP RISES. Current Canadian capacity for mechanical pulps used in paper and paperboard manufacture is 10,443,000 metric tpy (approximately 11.5 million short tpy), according to recent Canadian Pulp & Paper Assn. figures. Between 1985 and 1988, Canadian capacity to produce groundwood will decrease by about 5%, with current capacity at 5,550,000 metric tpy (approximately 6.1 million short tpy). Capacity for atmospheric-refined pulp (RMP) remains virtually unchanged from recent years at 416,000 metric tpy (approximately 458,500 short tpy). TMP capacity (including CTMP) is 4,477,000 metric tpy (approximately 4.9 million short tpy). Some 602,000 metric tpy (approximately 664,000 short tpy) of Canadian mechanical pulp production is available as market pulp.

The most recent American Paper Institute capacity figures show a total U.S. mechanical pulp capacity of 6,209,000 short tpy, growing to around 6,600,000 tpy by 1989. Groundwood capacity of about 3 million tpy will remain basically unchanged through 1989. TMP will reportedly increase from a current capacity of about 2 million tpy to 3 million tpy in 1989.

CTMP EXPLOSION IN CANADA. A dramatic surge in market CTMP capacity is under way in Canada (Table 1). Prior to 1985, Canada had only one market CTMP mill, Quesnel River Pulp Co., Quesnel, B.C., with a capacity of 550 short tpy.

Consolidated-Bathurst built a CTMP plant in Bathurst, N.B., for supplying pulp to its newsprint mill in England. Recently, pulp shipments to England were cut in half and expanded bleaching facilities installed, with 100,000 tpy of bleached CTMP available for marketing.

In 1986, Temcell, an affiliate of Tembec Inc., placed a market

CTMP mill with a design capacity of 110,000 tpy in operation. Cascades Inc. has acquired the idle sulfite mill of Rayonier Quebec Inc. at Port Cartier, Que., and has recently converted the output to 175,000 tpy of bleached CTMP.

This past winter, Millar Western Pulp Ltd., Edmonton, Alta., began construction of a 220,000-tpy bleached CTMP mill at Westcourt, Alta. Fibreco Export has announced plans for a 200,000-tpy bleached CTMP mill in the interior of British Columbia. Fibreco is a consortium of 38 sawmills in that area.

Quesnel River announced this spring a major expansion of its TMP plant to provide an additional 275 tpd of bleached CTMP for the market. This addition will give Quesnel River a total market pulp capacity of nearly 300,000 tpy of CTMP, definitely the world's largest, with a capacity equal to the present total of the five market CTMP mills in Sweden.

By 1989, Canadian market CTMP capacity could be well over 1 million tpy, providing that one or more of these new mills does not give up the marketing fight and install a paper machine to utilize some of the CTMP capacity. The Canadians are concerned about developing near future markets to handle this potential large increase in capacity.

The one remaining Canadian mill still producing groundwood for the market, a division of Miramichi Pulp & Paper Co., now sends one half of its 300,000-tpy output to the company's nearby new coated publication paper mill, leaving only 150,000 tpy of groundwood for sale.

The only market RMP mill in Canada, that of Finlay Forest Products (450 tpd), will withdraw its production from the market in 1989 when the company begins operation of its new onsite newsprint mill. The only two remaining market RMP mills in the world are very small units in New Zealand and Norway.

MODERATE GRINDER ADDITIONS. New North American groundwood capacity using conventional grinders is quite modest, with only one major installation (four super-grinders) starting up in Canada. Six pressurized grinders were scheduled to start up at a U.S. installation during 1987. This is the second installation to produce PGW in the U.S. (there are none producing PGW in Canada). PGW grinders are currently on order for Scotland and Japan, which will install them in 16 mills thoughout the world.

A modification in grinder design by Voith Inc. is now available in Europe. Production installations began operating in 1986. Called "thermal grinding," the design is said to control the temperature at the grinding interface by raising or lowering the stock level in the grinder pit. In other words, the amount of pulp stone immersion is controlled.

The first two mills to use this method of controlling the quality of groundwood pulp (in 1986 and 1987) used

TABLE 1: **Canadian market CTMP capacity (short tons).**

Quesnel River	200,000 tpy now operating
Consolidated-Bathurst	100,000 tpy now operating
Temcell	110,000 tpy now operating
Cascades*	200,000 tpy to start fall of 1987
Millar Western	220,000 tpy to start summer of 1988
Fibreco Export	200,000 tpy to start late 1988
Quesnel River	100,000 tpy additional capacity late 1988
Total	1,130,000 tpy

*New type of refiner will later increase output by 70,000 tpy.

Mechanical pulping terminology

Since terminology used to describe various mechanical pulping processes is sometimes confusing and inconsistent, the following discussion clarifies those terms used in this article.

Almost invariably in North America, "groundwood" is used to mean pulp produced on a pulp stone in a grinder. Groundwood (GW) or "atmospheric groundwood" (AGW) is used throughout this article to refer to conventional groundwood. If a grinder operates under pressure, the resulting pulp is called pressurized groundwood (PGW). Thermal groundwood is produced in grinders designed to control grinding zone temperature.

In North America during the 1950s, the first mechanical pulps were produced with disc refiners for use in papermaking. Those disc refiners were operated atmospherically, and the pulp produced by the refiners came to be called refiner-mechanical pulp (RMP).

In the next few years, a gradual switch to pressurized refiners took place and the product was called thermomechanical pulp (TMP), because pressurization elevated the temperature in the refining zone. Subsequently, treatment of the chips with chemicals prior to refining was widely adopted. The treatment process involved impregnating the chips with sodium sulfite and refining them in a pressurized refiner. This product is then referred to as chemi-thermomechanical pulp (CTMP).

In a later process, the impregnated chips were given a light cook and then refined in an atmospheric refiner. The cooking step made the higher temperature used in the TMP process unnecessary to obtain stronger pulp. Pulp from this process using cooked chips is frequently referred to as "chemimechanical pulp" (CMP), which is somewhat confusing since it implies that CTMP is not chemimechanical. A few authors use "chemirefiner-mechanical pulp" (CRMP), since RMP is firmly established to mean atmospheric.

CMP is used in this article to cover the various names used by innovators of this process, including "sulfonated chip mechanical pulp" (SCMP), Ultra High Yield Sulfite (UHYS), etc., and to differentiate these from CTMP.

existing Voith grinders modified for grinder pit level control. Two other mills were scheduled to install new grinders with level control in 1987; in addition, another mill will modify two grinders. As far as is known, all five mills are located in Germany. These grinders are reported to use less horsepower compared with modern grinders installed in North America. This so called "thermal pulp" is said to be stronger than conventional atmospheric groundwood. Mills outside of North America still have more apparent interest in groundwood than those on this continent.

EQUIPMENT PRODUCER DEVELOPMENTS. During the past two years, some major changes have occurred among principal suppliers of equipment for production of mechanical pulp using disc refiners. Bauer and Sprout Waldron have been combined as Sprout-Bauer under the ownership of Combustion Engineering. Sunds Defibrator Inc. has acquired the United Paper Mills of Finland, Jyhlhavaara refiner equipment and also is seeking a joint operation with Impco.

This means that there is now only one domestic manufacturer and one foreign manufacturer of refiners in the U.S. and one domestic and two foreign manufacturers in Canada.

The grinder manufacturing arena is limited to four major companies, one each in the U.S., Canada, Finland, and Germany.

Sprout-Bauer is continuing development work using extruding equipment to shred chips prior to refining. Voith's relatively new "thermal" groundwood process was discussed above.

A new type of refiner by Hymac Ltd. is being installed as an experimental line at the Cascades CTMP mill. The refiner combines two refining stages and will have two 30,000-hp motors.

Very active development work is under way by several equipment companies on new processes to efficiently bleach mechanical pulps to substantially higher brightness, notably for CTMP. Mead Corp. has a new chemimechanical pulping process for hardwoods in operation at its Escanaba, Mich., mill. This process uses two stages of chemical impregnation followed by a short cook and atmospheric refining. The chips are first shredded and then soaked in sodium hydroxide (with the excess pressed out). Next, the chips are impregnated with a sodium sulfite solution, briefly cooked at a moderate temperature, and then refined. Power consumption is moderate, and yield is said to be 85% to 90%. The pulp can be bleached with peroxide. ■

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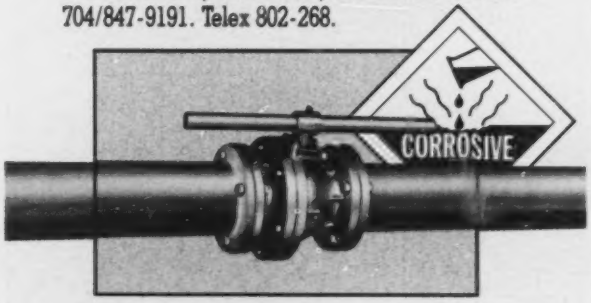

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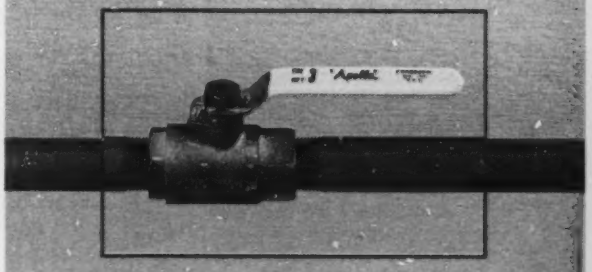

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